

The impact of fertility on maternal mortality in three rural districts of Tanzania

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The World Health Organization estimates that the lifetime risk of maternal death in sub-Saharan Africa is 1 in 16 compared with 1 in 2800 in developed countries. Apart from such estimates of major disparities, however, little is known about the relative roles of fertility and parity specific risk in explaining these differentials. This paper employs decomposition methods with large scale longitudinal data on the timing and causes of death, collected in three demographic surveillance sites in rural Tanzania. We use these data to decompose measures of maternal mortality risk into several components that are associated with 1) high fertility and 2) age and parity-specific risk of maternal mortality.

Analysis employs longitudinal data from the Health and Demographic Surveillance Systems (HDSS) operated by the Ifakara Health Institute in Rufiji, Kilombero, and Ulanga Districts. In 2010 HDSS operations followed approximately 207,000 individuals. The HDSS conducts three rounds of data collection each year, which include information on births, deaths, migrations, and unions. Moreover, verbal autopsy procedures are used to assign causes of death for each event.

We apply a decomposition procedure to assess the contribution of fertility to maternal mortality over the 1998-2010 period. Risk associated with maternal death is defined by the exact age of death of decedents and single age specific parity progression probabilities. Throughout the study period, both maternal mortality and fertility remained high, at approximately 600 per 100,000 and 6.2 births per woman, respectively. Our model projects the volume of maternal deaths are expected if Ifakara rates applied to all women in Tanzania and the number of maternal deaths that could be averted if fertility were to decline by levels that would be expected if unmet need for family planning in Tanzania were attained.

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